

**STATE:** MONTANA

**AGENCY:** Montana Fish, Wildlife & Parks

**GRANT TITLE:** Montana Terrestrial, Riparian & Wetland SWG Conservation Program

**MT TRACKING #:** T-37-HM-7

**FBMS NUMBER:** \_\_\_\_\_

### **PROJECT 1. Species-Based Conservation**

Conservation efforts at the landscape and community level offer some of the greatest potential to leverage resources in order to provide benefit to multiple species. FWP proposes to enhance conservation efforts for at risk species or groups of species through focused monitoring and population assessments, focused habitat or species restoration, and partner collaboration.

### **Expected Results and Benefits**

Species-specific enhancement efforts will focus on: 1) developing suitable and effective assessment protocols; 2) conducting assessments to ascertain current status, distribution and demographic attributes; and 3) working with partners to implement specific protocols across private and public lands so as to further identify key conservation needs and implement effective conservation strategies. These efforts will assist with the implementation of various species management plans, continued work on recovery of certain species, gaining a better understanding of population status and distribution, and developing protocols that can be employed by the agency and conservation partners in future monitoring programs. Furthermore, information gained through these efforts will help shape conservation strategies designed to protect and enhance key habitats.

### **Accomplishments**

**Bog lemming monitoring protocols:** Extract and analyze DNA from small mammals. MFWP Region biologists collected small mammal scat samples to develop DNA profiles that may help identify presence of bog lemmings in western Montana. This work is in attempt to develop a non-invasive protocol for detected bog lemmings that may help prioritize habitat conservation for this Species of Concern.

**Amphibian monitoring:** Protocols for statewide amphibian monitoring were developed to assist biologists across the state in monitoring the variety of amphibian species to include many species in need of inventory (Appendix I). Using these protocols, calling surveys were performed by Montana Natural Heritage (MNHP) and Montana Fish, Wildlife and Parks (MFWP) staff as well as some federal agency staff, i.e. US Forest Service and Bureau of Land Management. All but a handful of quarter-quarter latitude-longitude blocks across Montana were surveyed. Calling routes in eastern Montana were initiated near randomly selected locations while western Montana routes were hand selected to target the pacific tree frog (Figure 1). Western toad breeding site surveys were conducted by MNHP staff and other state and federal agencies at over 60% of the known breeding sites within the species' range and evidence of recent reproduction was found at a high percentage of these sites.

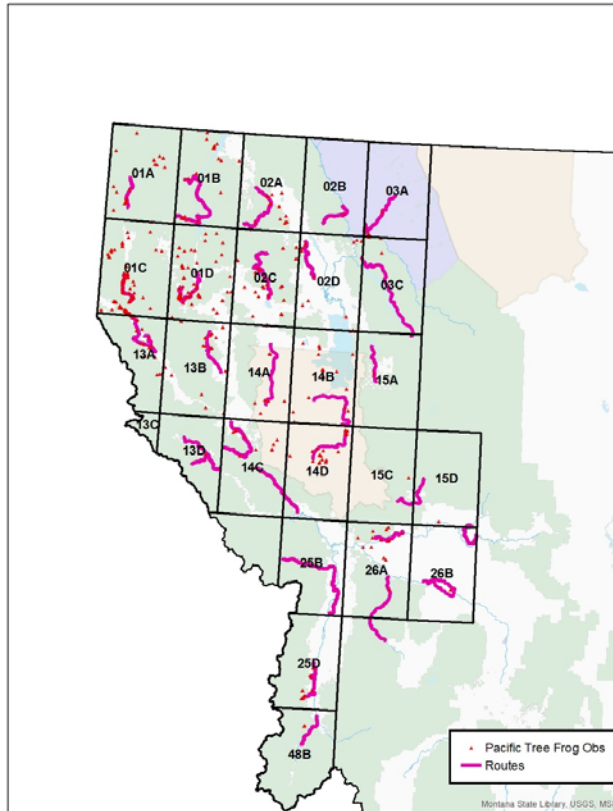


Figure 1. Pacific tree frog survey routes in western Montana and observations from 2016.

Hoary marmot monitoring for habitat conservation: Hoary marmots are considered at risk in Montana due to their assumed reliance on high elevation habitats and a limited capacity for distribution among these habitats. Twenty-three locations within 11 mountain ranges were identified as part of a Montana study (Figure 2) of hoary marmot genetic diversity and habitat use. During the summers of 2014 and 2015, 39 marmots were captured across western Montana. Initial results indicate marmots were more likely to occupy sites with increased cover of boulders and wet meadows and less likely to occupy sites with increased cover of shrubs and grasses. Genetic testing is underway to determine the relatedness of marmots across mountain ranges which should indicate their ability to move across rough landscapes if habitat conditions change. Information collected from this research will help managers prioritize conservation actions for high elevation species of all kinds to include mountain goats, pika, and ptarmigan.

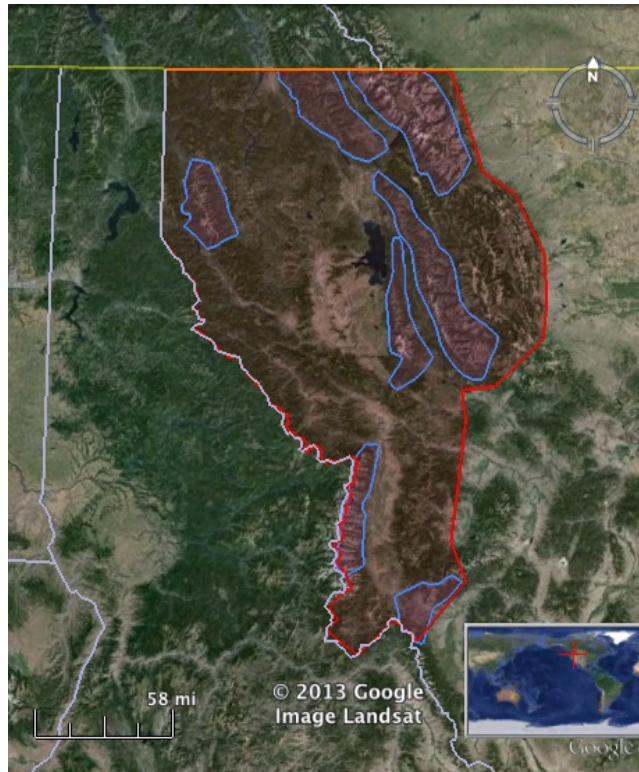


Figure 2. Western Montana hoary marmot study areas in blue and overall marmot distribution in red.

Raptor monitoring for ecosystem health tracking: The ‘Golden Eagle Migration Survey’ is a collaborative, science-based effort by Montana Audubon and MFWP to study the fall migration of golden eagles and other raptors in the Big Belt Mountains of west central Montana. As raptors are key indicators of ecosystem health, long-term migration counts are the best way to measure raptor population status and trends. The migration count, if continued annually for a decade or more, will provide critical data to assess the health of golden eagles and other raptors inhabiting western N. America. A remarkable 4,318 migrating raptors of 17 species (including 2,630 golden eagles) were counted during a partial census in fall 2015. Observations from throughout the United States suggest this flyway may represent the largest observable concentration of migrating golden eagles found in the lower 48 states. For example, on October 7th counters recorded the passing of 329 golden eagles within 8.5 hours.

Species monitoring in the Face of Climate Change: MFWP engaged in new climate and species monitoring through the ‘Harlequin Duck Habitat Use, Migration, and Connectivity project.’ Harlequin duck movements are being monitored in NW Montana through a cooperative tracking study involving multiple partners such as Glacier National Park. The project is an international, multi-agency effort to examine local and broad movement patterns and habitat use of harlequin ducks in western North America. The objectives are to: characterize breeding habitat use, identify local movement patterns on inland breeding streams, identify home range characteristics (i.e. size, core area, distribution) of inland and winter range, better understand site fidelity and both adult and juvenile dispersal, identify timing of movement between inland breeding streams and coastal molting and wintering areas, identify location of coastal molting and wintering areas and identify where birds from specific breeding populations (e.g. AB, MT, WY, WA) spend the winter.

MFWP collected five potential white-tailed ptarmigan feathers and eight potential scat samples for genetic confirmation. Efforts to collect information on white-tailed ptarmigan will continue in 2016.

Habitat Restoration along the Flathead River: The purpose of the Foys Bend restoration project is to preserve, create, enhance, restore, and protect the functional values of riparian lands, wetlands and other lands, and to conserve natural values including fish and wildlife habitat, water quality, flood water retention, groundwater recharge, open space, and aesthetic values on the Flathead River. This project will ultimately help maintain the habitat integrity of this portion of the Flathead River system where the Stillwater and upper Flathead merge and transition into the meandering lower Flathead River system. Habitat restoration was conducted as this is an ideal property on which to conduct experimental plantings and collect data on restoration progress and success in order to inform future practices. In addition to the cottonwood experiment, an intensive monitoring regime is being applied to the restoration project installed in 2014 in the hay-field. Though monitoring was suspended in 2015 due to degradation of the flagging that denoted the sample population, we observed similar trends in terms of species growth as at Diamond B (another restoration site on the Flathead River), with conifers being the slowest growing and woody pioneer species being the fastest. There are many vigorous aspen stands at this property, which are evidenced by small, often browsed seedlings emerging in the agricultural fields and grass communities around aspen communities. Several of the exclosures installed were expressly intended to encourage the passive restoration and expansion of aspen stands by removing ungulate browse pressure. Those installed in 2014 were placed within the hay-field to encourage the expansion of nearby cottonwood and aspen stands while also protecting newly installed plants. In an effort to further evaluate the appropriate sample size for properly capturing restoration progress, and also to re-initiate monitoring following the degradation of the sample flags, the entire hay-field project was monitored in 2015. This was an intensive sampling trip, requiring about six times as much time as the sub-sample had, but it provided a complete picture of the current state of plant growth and survival for this project.

Long-billed curlew habitat initiative: Coordinated efforts occurred among the American Bird Conservancy, MFWP personnel, and volunteers to repeat survey efforts from 2012 in focal areas identified by a habitat suitability model. Over 45 surveys were conducted in April and May, 2016. Surveys were approximately 4.5 miles long with stops made every 0.5 miles for a period of 5 minutes each. Curlews, upland sandpipers, and burrowing owls were observed, habitat suitability models were validated and curlew “hot spots” were identified that could be used to target habitat conservation.

Since 2013, FWP has worked with Montana Audubon and members of the Montana Bird Conservation Partnership to implement the Long-Billed Curlew Habitat Initiative. Work of this initiative includes surveys for nesting curlews across western Montana and identification of high quality habitats for prioritizing conservation efforts. Surveys to date have focused on the Upper Missouri and Mission Valleys where the partnership is compiling strategies for habitat conservation. The use of land owner incentive programs is one of those potential strategies and land owner brochures showing best management practices for grassland conservation have been developed. Management for curlews targets grazed, native vegetation for breeding sites and croplands of short to moderate height grasslands for brood rearing and foraging. The effectiveness of conservation actions will be monitored by the Montana Bird Conservation Partnership members and partners of the Long-Billed Curlew Habitat Initiative.

MFWP avian conservation biologist: This biologist facilitates discussions of the Montana Bird Conservation Partnership and works with the University of Montana, Montana Audubon, Bird Conservancy of the Rockies, Intermountain Bird Observatory, US Forest Service, US Fish and

Wildlife Service, Joint Ventures and Montana Natural Heritage Program to complete much needed avian monitoring. The coordinator maintains working relationships with other state coordinators through Pacific and Central Flyway committee representation, i.e. Nongame Technical Committee, that have furthered Montana's involvement in range-wide species monitoring and conservation. The Montana Bird Conservation Partnership (MBCP) met in January 2016 to focus on refining Montana's statewide monitoring strategy including assessing the Integrated Monitoring in Bird Conservation Regions, USGS Breeding Bird Surveys, and individual species survey efforts (e.g. black rosy-finch, eagles, long-billed curlew.) Efforts have been made to increase participation in Breeding Bird Survey routes and to increase participation by partners in the Integrated Monitoring in Bird Conservation Regions. We continue to assess landbird monitoring efforts (Figure 2) for their utility for management given a small volunteer base and limited funding. Efforts are being made to coordinate with the MFWP habitat conservation coordinator to develop direct ties between monitoring and conservation efforts.

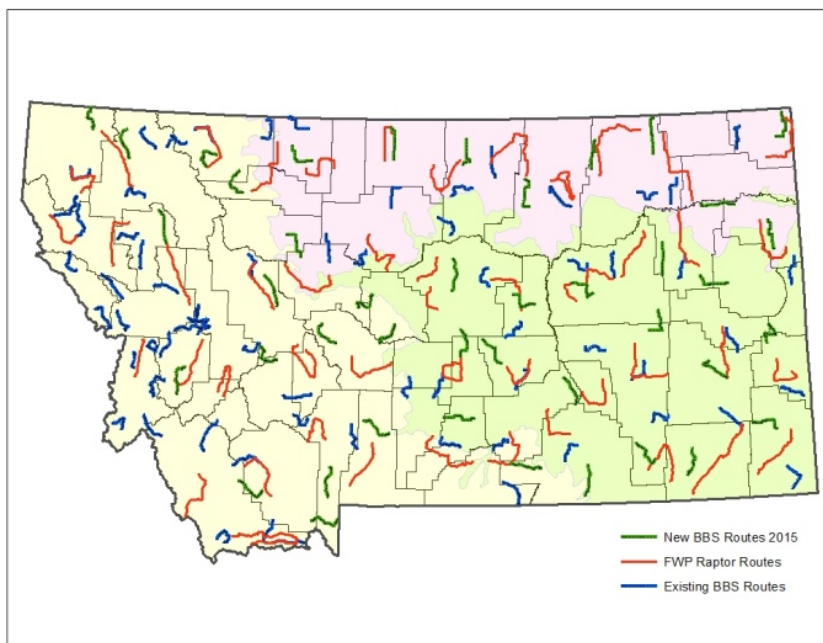


Figure 3. Overlay of various large-scale bird monitoring efforts to gauge overlap and potential for increased coverage for all landbirds in Montana.

Technical services: Technical expertise and advice was provided by MFWP Nongame Specialists in the areas of wind farm, solar energy, cell tower developments and habitat conservation projects.

## **PROJECT 2. Species Survey and Inventory**

There is a need to continue assessment of the distribution and status of terrestrial species under-represented in state databases and utilize new survey information to support potential conservation actions and assess on-going strategies. FWP intends to prioritize and facilitate partnerships for on-the-ground monitoring of priority species.

### **Expected Results and Benefits**

Species survey and inventory provides critical information to conservation and management decisions across the state. Information also informs range wide species discussions particularly when species are proposed for listing under the Endangered Species Act. A number of species or species groups

have been downlisted within the Montana Species of Concern list or removed from the Montana Species in Need of Inventory list due to targeted species survey efforts in recent years.

### **Accomplishments**

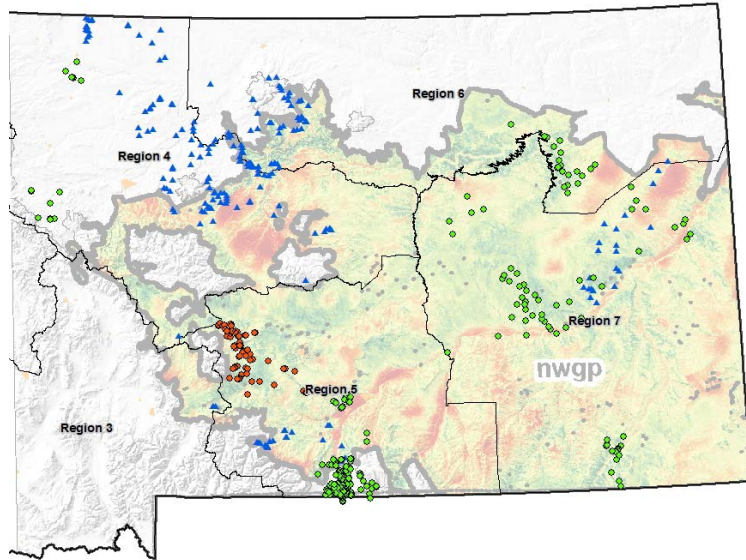
Piping plover international census: MFWP participated in the piping plover international census that was coordinated by U.S. Fish and Wildlife Service. The lower Yellowstone River from Hysham to the North Dakota border was surveyed over a period of five days during the international census window (June 4 – 17). Sandbars or gravel bars that were not attached to the mainland and contained a portion of un-vegetated gravel or sand was surveyed. Most island/shorelines were observed through the use of binoculars and walked when necessary. We observed two adult plovers and one nest with four eggs.

Least tern monitoring: In coordination with the piping plover international census, we also surveyed for any least terns using the same methodology. The area surveyed included the lower Yellowstone River from Hysham to the North Dakota border in early June. Sandbars or gravel bars that were not attached to the mainland and contained a portion of un-vegetated gravel or sand was surveyed. Most islands/shorelines were observed through the use of binoculars and walked when necessary. We observed 11 adults and three nests.

Bald eagle monitoring: Efforts to monitor bald eagle nests specifically in FWP Region 7 where less is known about expanding populations were reduced to monitoring one-third of known nests annually. In 2016, an aerial survey was conducted on the portion of the lower Yellowstone River from Miles City to the Bighorn River confluence for occupancy in early May. During the survey we monitored 27 previously known nests with 17 nests classified as active and 10 as inactive. For the inactive nests, three were occupied by Canada geese. We observed 11 new nests with nine classified as active and two as inactive. We observed a total of 31 adults and 31 juveniles. With efforts reduced, productivity (number of successful fledglings) is unknown.

Golden Eagle Monitoring: Aerial surveys to locate golden eagle nests have been conducted in 2014, 2015, and 2016. The area of focus for 2016 was identified in FWP Region 5 (Bird Conservation Region 10) and surveys were conducted by helicopter in June 2016. These surveys were located in areas where predictive models identified highly suitable habitat and/or high risk for wind development, but were not surveyed in previous efforts. All observations of Golden Eagles and their nests were recorded during the survey (Figure 4). Nests were classified as active or inactive. During the survey, 108 golden eagle observations were recorded including 13 active nests. A total of 52 adult or juvenile golden eagles were observed during 12.5 hours of surveys. Observations of 15 nestlings were recorded. Golden eagle nests were associated with cliffs and plains cottonwood trees.

Figure 4: Golden eagle observations during aerial surveys conducted in 2014-2016.



Harlequin duck and harlequin duck habitat monitoring: MNHP staff worked with the MFWP Avian Conservation Biologist to coordinate surveys performed by MNHP, MFWP, USFS and NPS staff on 31 of 46 streams (Figure 5) of significant stream reaches across western Montana where harlequin duck broods or pairs have been observed in the past. Fires and associated access or logistical challenges prevented surveys of the remaining streams. A total of 25 females and 85 chicks were detected on 12 drainages with one female and one chick from Absaroka/Beartooth streams, zero females or chicks from lower Clark Fork streams, two females and three chicks from streams in the Whitefish Mountains, zero females or chicks from middle Clark Fork streams, three females and 12 chicks from streams on the East front of the Rockies, seven females and 33 chicks from streams on the South Fork of the Flathead, one female and three chicks from the Middle Fork of the flathead River, and 11 females and 33 chicks from stream in Glacier National Park. For comparison, a total of 31 females and 115 chicks were detected on 17 of the 44 drainages surveyed in 2014.

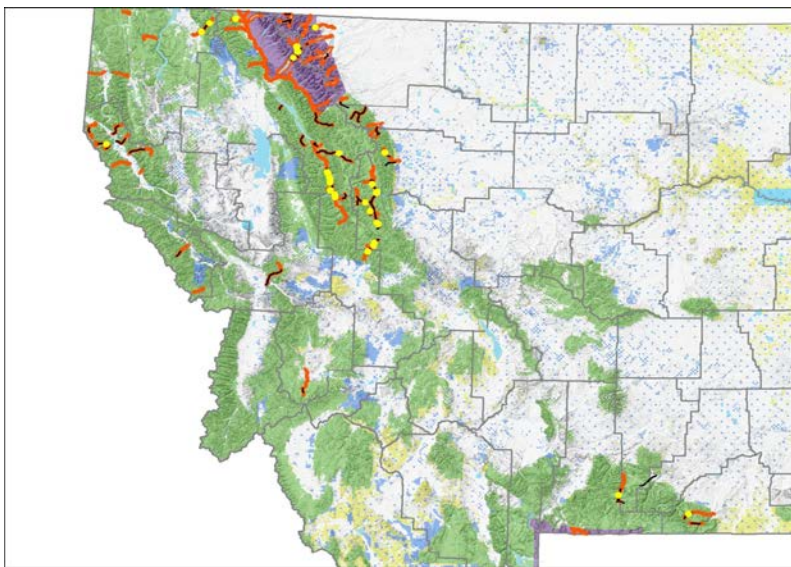


Figure 5. Distribution of harlequin duck surveys in northwest and south central Montana.

Integrated monitoring in Bird Conservation Regions: Coordinating with MFWP, the US Forest Service, Intermountain Bird Observatory, and 12 other states, Bird Conservancy of the Rockies implemented statewide bird monitoring (Integrated Monitoring in Bird Conservation Regions, IMBCR) in each of the 3 Bird Conservation Regions in Montana in 2015 and 2016. IMBCR surveys have been conducted in Montana since 2009 (BCR17), and has been statewide since 2010 (BCR 10 and 11). Field technicians completed 193 or 194 planned surveys in 2015, detecting 241 species including 39 priority species. Densities and populations sizes were detected for 90 species (with a CV <50%). The entire 2015 report is available at [www.birdconservancy.org](http://www.birdconservancy.org). One hundred percent of the planned surveys in Montana were completed in 2016. A final report for the 2016 season is anticipated in March 2017.

Colonial waterbird surveys: Surveys of colonial nesting waterbirds were conducted for the eighth consecutive season from May through July of 2016 at sites which have been identified as important in monitoring the species of particular interest (target species). Eleven species of waterbirds in Montana are Species of Concern, and Caspian Tern is a Species of Greatest Conservation Need. Lakes, Reservoirs, and Open Water and Wetlands are all Community Types of Greatest Concern. Waterbirds and wetlands are not well surveyed during statewide bird monitoring efforts. During the 2016 season, a total of 16 sites (Figure 6) were surveyed and data were collected on all of the 19 waterbird species known to nest in Montana (including American white pelican, double-crested cormorant, great blue heron, black-crowned night-heron, white-faced ibis, Franklin's gull, Caspian tern, Forster's tern, common tern, black tern, red-necked grebe, Western grebe, ring-billed gull, California gull). In addition to the anticipated species and colonies, an indirect record of nesting cattle egrets was documented at Bowdoin National Wildlife Refuge. This would be a new record for the state. Much of this work was accomplished through the use of citizen scientists across the state.

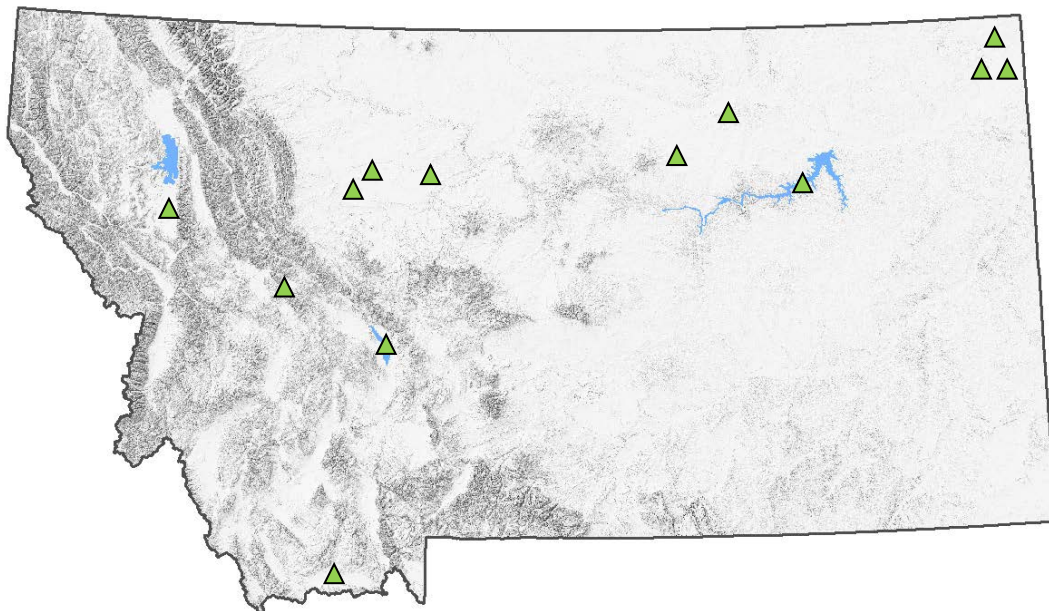


Figure 6: A selection of waterbodies important for colonial nesting waterbirds in Montana

Bat mist-net and acoustic monitoring: Although acoustic data is extremely important for determining species presence and distribution, given the challenges with correctly identifying the acoustic calls, mist-netting surveys are important for validation of species. Mist-netting surveys also provide valuable information on sex, age, and reproductive status of animals that is unobtainable from acoustic efforts. However, previous mist-netting efforts in southeastern Montana are limited (Figure 7.) Additionally there are a number of state-listed species of concern in Montana that include fringed myotis, hoary bat, little brown myotis, pallid bat, spotted bat, and Townsend's big-eared bat. The Northern myotis was listed as threatened in portions of far-eastern Montana in 2015. Mist-net surveys were conducted on 10 sites in eastern Montana and two sites in central Montana. We captured a total of 115 bats. Species included big brown bat, fringed myotis, hoary bat, little brown myotis, long-eared myotis, long-legged myotis, silver-haired bat, and western small-footed myotis. Acoustic monitoring efforts continued throughout Montana this past year in an effort to establish baseline information on all bat species and their distribution in the face of white-nose syndrome.

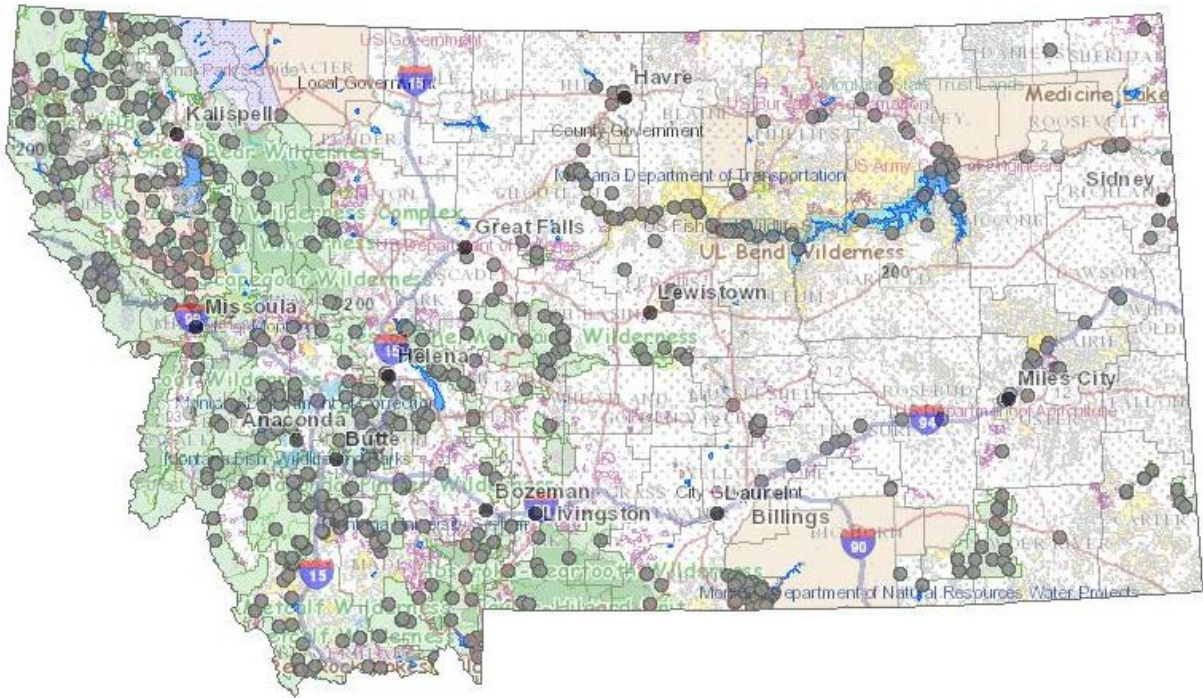


Figure 7. Previous sites mist-netted for bats in Montana from 1989 to present. Map created from Montana Natural Heritage Program's Map Viewer.

Small mammal monitoring: Efforts to survey for two small mammal species of concern, the Hispid pocket mouse and meadow jumping mouse were initiated in the late summer of 2015. Standard monitoring protocols, developed by MNHP in 2008 were used to conduct surveys. Small mammal transects were placed in areas where previous observations of the two targeted species were made dating back to 1970. Transects consisted of 10 stations that each contained one Sherman live trap, one Victor mouse trap, and one museum special mouse trap. Traps were set in the evening and checked in the morning for three days. We surveyed 4 sites with a total of 19 transect lines and 3,489 trap nights. We captured a total of 123 small mammals and one Woodhouse's toad. We caught 8 different species of small mammal with the majority being deer mice and meadow voles. We caught one meadow jumping mouse and zero Hispid pocket mice. We will attempt to refine our efforts in

2016 and target sites with suitable habitat based on previous observations and literature in addition to sites with previous detections.

Black swift monitoring: MFWP staff in northeast Montana conducted 23 ground surveys of waterfalls for black swift colonies. They also conducted one aerial survey where 24 waterfalls were scored based on several criteria. During ground-based surveys, black swifts were observed at 5 waterfalls, two of which were newly discovered colonies (Ransome Creek and The Crevice). Turner Falls, Old Highway 2, and Holland Falls were known black swift colony sites that were revisited and had black swifts present. At least 4 different nests were observed at Turner Falls with a high probability of a fifth nest; however, we could only see one nestling. Several birds were observed flying in and out of the Old Highway 2 colony, but no nests were located. Holland Falls was estimated to have 4 nests without actual visual confirmation. Ransome Creek had at least one nest. Two adults were observed feeding a chick. One nest was confirmed and two additional were suspected at The Crevice. Helicopter flights helped remove 18 waterfalls from the list to be surveyed based on habitat scores and identified six falls with high potential to be ground-surveyed in 2016.

MFWP staff in western Montana flew the Bitterroot Mountains. The higher elevations of the Bitterroot Mountains from Carlton Creek south to Boulder Creek were surveyed with a focus on the areas around lakes as these areas would have the most reliable water flows. Potential nesting waterfalls were marked and photographed. Waterfalls deemed as potential nesting areas had good flows and vertical drops, and appeared to have potential nesting ledges behind them. The amount of moss available for nest building could not be determined from these aerial surveys. Most of the potentially suitable waterfalls were in the Selway-Bitterroot Wilderness where access for ground surveys will be difficult. Information from this flight will be used to produce a map showing the distribution of potentially suitable waterfalls and identify those accessible by trail for future ground surveys.

Great gray owl monitoring: Nocturnal call surveys were initiated as a test for 2017 for great gray owls in order to bolster understanding of their current distribution in western Montana. A model of potential habitat was used to randomly select survey sites. More surveys are planned for 2017.

#### IV. PROGRAM FUNDING

##### FY2016 Grant Funding Segment Requested Amounts:

|                    | <b>Federal</b> |        | <b>Non-Federal</b> |        |               |
|--------------------|----------------|--------|--------------------|--------|---------------|
|                    | <b>Share</b>   |        | <b>Share</b>       |        | <b>Totals</b> |
| Direct Costs:      | \$334,720      |        | \$180,234          |        | \$514,954     |
| Indirect @ 18.31%: | \$61,287       |        | \$33,001           |        | \$94,288      |
| Total:             | \$396,007      | 65.00% | \$213,235          | 35.00% | \$609,242     |

\*The non-federal share will be in the form of general license account dollars and donations to the nongame program.

##### Estimated projects and total direct costs for Montana's Fiscal Year 2016

| <b>Project</b>                          | <b>FY16<br/>Proposed<br/>Spending</b> |
|---|---------------------------------------|
| Project 1: Species Based Conservation   | \$ 287,427                            |
| Project 2: Species Survey and Inventory | \$ 227,527                            |
| TOTAL                                   | \$ 514,954                            |

#### V. SCHEDULE

All proposed work will be performed between July 1, 2015 – June 30, 2016.

#### VI. LOCATION

Grant work was conducted across the state as appropriate.

#### VII. PROJECT PERSONNEL

|  |                 |            |
|--|-----------------|------------|
| Adam Brooks, Federal Aid Program Manager   | FWP Helena      | * 444-3032 |
| Ken McDonald, Bureau Chief                 | FWP Helena      | 444-5645   |
| Caryn Dearing, Operations Bureau Chief     | FWP Helena      | 444-3677   |
| Lauri Hanauska-Brown, Nongame Bureau Chief | FWP Helena      | 444-5209   |
| Allison Begley, Avian Conservation Bio     | FWP Helena      | 444-5209   |
| Kristina Smucker, Wildlife Biologist (R4)  | FWP Great Falls | 454-5860   |
| Brandi Skone, Wildlife Biologist (R7)      | FWP Miles City  | 234-0948   |
| Chris Hammond, Wildlife Biologist (R1)     | FWP Kalispell   | 751-4582   |
| Bryce Maxell, Senior Zoologist             | MHNP Helena     | 444-3655   |

\*Area code for all phone numbers is 406

